

IEEE Std 100-1996

# The IEEE Standard Dictionary of Electrical and Electronics Terms

STANDARD FOR THE DICTONARY OF ELECTRICAL AND ELECTRONICS TERMS

Sixth Edition



Published by the  
Institute of Electrical and  
Electronics Engineers, Inc.

Attachment A

IEEE Std 100-1996

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ELE427IE

113.00

# **The IEEE Standard Dictionary of Electrical and Electronics Terms**

**Sixth Edition**

**Standards Coordinating Committee 10, Terms and Definitions  
Jane Radatz, Chair**

This standard is one of a number of information technology dictionaries being developed by standards organizations accredited by the American National Standards Institute. This dictionary was developed under the sponsorship of voluntary standards organizations, using a consensus-based process.

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ISBN 1-55937-833-6



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example, a control character for switching such devices on or off. (C) 610.5-1990

**device coordinate system (computer graphics)** A device-dependent coordinate system in which the coordinates of addressable points are expressed in integer addressable units. *Note:* A device driver maps normalized device coordinates or world coordinates to actual device coordinates. (C) 610.6-1991

**device-dependent (computer graphics)** Pertaining to that which can be used only on a particular device. *Contrast:* device-independent. (C) 610.6-1991

**device driver (1) (computer graphics)** The software that translates device-independent commands into device-specific commands. (C) 610.6-1991

(2) The software responsible for managing low-level I/O operations for a particular hardware device or set of devices. Contains all the device-specific code necessary to communicate with a device and provides a standard interface to the rest of the system. *See also:* firmware device driver; operating system device driver. (BA/C) 1275-1994

(3) A program that runs on the host and manages the sending and receiving of information from the peripheral. The driver utilizes the link level interface defined in this standard to communicate data between the application program and the peripheral personality. (C/MM) 1284-1994

(4) A software component that permits a system to control and communicate with a peripheral device. *See also:* disk driver; printer driver. (C) 610.10-1994

**Device ID** A structured, variable length ASCII message identifying the manufacturer, command set, and model of the peripheral. The message is provided by the peripheral in response to a request issued by the host during the negotiation phase. Provided that the peripheral supports the bidirectional mode requested by the host, this message is provided in the requested mode. The Device ID is intended to assist the host in selecting the device and/or peripheral driver appropriate to the peripheral. (C/MM) 1284-1994

**device-independent (computer graphics)** Pertaining to that which can be used on a variety of devices. *Contrast:* device-dependent. (C) 610.6-1991

**device interface** One of the interfaces specified in this standard that allows devices to be identified, characterized, and used to assist other Open Firmware functions such as booting. (BA/C) 1275-1994

**device media control language (data management)** A language that may be used to describe the physical layout and organization of data within some physical storage media. (C) 610.5-1990

**device node** A particular entry in the device tree, usually describing a single device or bus, consisting of properties, methods, and private data. (A device node may have multiple child nodes and has exactly one parent node. The root node has no parent node.) (BA/C) 1275-1994

**device path** A textual name identifying a device node by showing its position in the device tree. (BA/C) 1275-1994

**device register (A)** An addressable register used to store information describing the device. *See also:* control register. (B) An addressable register used to store status and control information, and data for transmission to or from a device. *Synonym:* device status word. (C) 610.10-1994

**device rise time (photomultipliers for scintillation counting)** The mean time difference between the 10- and 90-percent amplitude points on the output waveform for full cathode illumination and delta-function excitation. DRT is measured with a repetitive delta-function light source and a sampling oscilloscope. The trigger signal for the oscilloscope may be derived from the device output pulse, so that light sources such as the the scintillator light source may be employed. (NPS) 398-1972r

**device space (computer graphics)** The area defined by the addressable points of a display device. (C) 610.6-1991

**device specifier** Either a device path, a device alias, or a hybrid path that begins with a device alias and ends with a device path. (BA/C) 1275-1994

**device status word** *See:* device register.

**device tree** A hierarchical data structure representing the physical configuration of the system. (The device tree describes the properties of the system's devices and the devices' relationships to one another. Most Open Firmware elements [devices, buses, libraries of software procedures, etc.] are named and located by the device tree.) (BA/C) 1275-1994

**dew point** The temperature at which the water vapor in the gas begins to condense, expressed in degrees Fahrenheit (°F), Celsius (°C). (PE) 1125-1994

**device type** Identifies the set of properties and package class that a node is expected to implement. Specified by a "device.type" property. (BA/C) 1275-1994

**dew point temperature** *See:* temperature, dew point.

**dew withstand voltage test** A test to determine the ability of the insulating system to withstand specified overvoltages for a specified time without flashover or puncture while completely covered with dew. (PE/SWG) C37.100-1992, C37.23-1994

**dezincification** Parting of zinc from an alloy (parting is the preferred term). *Note:* Other terms in this category, such as dealuminification, dealuminumification, demolybdenization, etc., should be replaced by the term parting. *See also:* parting. (IA) [5]

**DF** *See:* direction finder.

**DF antenna** *See:* direction finder antenna system.

**DFD** *See:* data flow diagram.

**D Filter** A 300 Hz to 3400 Hz bandpass filter used for measuring noise, impulse noise, or data modem signal power. Noise measured through the D-Notched filter is used to evaluate effect on the performance of a data modem. (COM) 743-1994

**D flip-flop** A flip-flop that has one data input, one trigger, and an output which assumes the state of the data input when the trigger is received. (C) 610.10-1994

**DFS** *See:* depth-first search.

**DF sensitivity** *See:* direction finder sensitivity.

**dg** *See:* decilog.

**diad (mathematics of computing)** A group of two closely related items or digits. (C) 1084-1994

**diagnosis** The conclusion(s) resulting from tasks, tests, observations, or other information. (ATL) 1232-1994

**diagnosis, fault** The action of determining the cause of an error in location and nature. (BA/C) 896.9-1994

**diagnostic (1) (software)** Pertaining to the detection and isolation of faults or failures; for example, a diagnostic message, a diagnostic manual. (C) 610.12-1994

(2) A process by which hardware malfunctions may be detected. (PE/SUB) 999-1994

**diagnostic factor (evaluation of thermal capability) (thermal classification of electric equipment and electrical insulation)** A variable or fixed stress, which can be applied periodically or continuously during an accelerated test, to measure the degree of aging without in itself influencing the aging process. 1-1994

**diagnostic field tests and measurements (power apparatus)** Procedures that are performed on site on the complete apparatus or parts thereof in order to determine its suitability for service. *Note:* The parameters measured differ from apparatus to apparatus and may include electrical, mechanical, chemical, thermal, etc., quantities. Interpretation of the results is usually based on a change in the measured characteristic and/or by comparison with pre-established criteria. The tests are normally carried out at regular intervals based on use experience and/or manufacturers' recommendations. The tests may also be performed on defective apparatus in order to determine the location and/or cause of failure. (PE) 62-1994

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# Diagnostic field tests and measurements

device path, a device alias, or a hybrid of a device alias and ends with a device (BA/C) 1275-1994

device register.

data structure representing the physical system. (The device tree describes the system's devices and the devices' relationships. Most Open Firmware elements [descriptors of software procedures, etc.] are named after the device tree.) (BA/C) 1275-1994

temperature at which the water vapor in the gas is expressed in degrees Fahrenheit (°F) or Celsius (°C) (PE) 1125-1993

set of properties and package classes used to implement. Specified by the property. (BA/C) 1275-1994

See: temperature, dew point.

test A test to determine the ability of a device to withstand specified overvoltages for a short flashover or puncture while conducting.

(C) 37.100-1992, C37.23-1987

of zinc from an alloy (parting is the preferred term in this category, such as deminification, demolybdenization, etc.) defined by the term parting. See also: parting. (IA) [59]

finder antenna system.

gram.

00 Hz bandpass filter used for measuring the data modem signal power. Noise D-Notched filter is used to evaluate the presence of a data modem.

(COM) 743-1995

that has one data input, one trigger, and measures the state of the data input when the trigger occurs. (C) 610.10-1994

arch.

action finder sensitivity.

computing) A group of two closely related tests. (C) 1084-1986w

on(s) resulting from tasks, tests, observations. (ATL) 1232-1995

tion of determining the cause of an error. (BA/C) 896.9-1994

re) Pertaining to the detection and isolation; for example, a diagnostic message. (C) 610.12-1990

ich hardware malfunctions may be detected. (PE/SUB) 999-1992

uation of thermal capability) (thermal stress equipment and electrical insulation stress, which can be applied periodically during an accelerated test, to meaning without in itself influencing the aging process. 1-1986r

nd measurements (power apparatus) performed on site on the complete apparatus in order to determine its suitability for parameters measured differ from apparatus / include electrical, mechanical, chemical quantities. Interpretation of the results is change in the measured characteristics with pre-established criteria. The tests are carried out at regular intervals based on users' manufacturers' recommendations. These are performed on defective apparatus in order to determine the cause of failure. (PE) 62-1995

## Diagnostic Machine Aid—Digital

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diameter

**Diagnostic Machine Aid—Digital (DMAD)** A test language used for functional testing of digital devices; allows device description in terms of registers, signal names, and functional operators, such as logical operators and Boolean operations. (C) 610.13-1993

**diagnostic manual (software)** A document that presents the information necessary to execute diagnostic procedures for a system or component, identify malfunctions, and remedy those malfunctions. Typically described are the diagnostic features of the system or component and the diagnostic tools available for its support. See also: installation manual; operator manual; programmer manual; support manual; user manual. (C) 610.12-1990

**diagnostic procedure** A structured combination of tasks, tests, observations, and other information used to localize a fault or faults. (ATL) 1232-1995

**diagnostic resolution** The ability to trace a trouble to a minimum number of replaceable elements. (COM) 973-1990w

**diagnostic routine (1)** A routine designed to locate either a malfunction in the computer or a mistake in coding. See also: programmed check. (C) 270-1966w

**(2) (test, measurement, and diagnostic equipment)** A logical sequence of tests designed to locate a malfunction in the unit under test. (MIL) [2]

**diagnostics, self Programs** automatically executed, at predetermined intervals, in the master station or RTU, to check the health of the system. (PE/SUB) C37.1-1994

**diagnostic test (1)** A test applied to a unit under test (UUT) with the purpose of isolating a fault to a lower level of assembly. (ATL) 771-1989w

**(2) (test, measurement, and diagnostic equipment)** A test performed for the purpose of isolating a malfunction in the unit under test or confirming that there actually is a malfunction. (MIL) [2]

**(3)** A test, or collection of tests, that is invoked by writing to the TEST-START register. There are four forms of diagnostic tests: initialization tests, extended tests, manual tests, and system tests. (C/MM) 1212-1991s

**diagnostic tests** Comparative tests or measurements of one or more of the characteristic parameters of a circuit breaker to verify that it performs its functions. Note: The result from diagnostic tests can lead to the decision of carrying out overhaul. (PE/SWG) C37.10-1995

**diagnostic unit (recursive)** A collection of one or more diagnostic conclusions and diagnostic units. It represents a conclusion that might be drawn through the process of diagnosis and is related to repair by physical mapping and repair actions. (ATL) 1232-1995

**diagonally integrated microprocessor** A microprocessor in which diagonal microinstructions can be performed. Contrast: horizontally integrated microprocessor; vertically integrated microprocessor. (C) 610.10-1994

**diagonal microinstruction (1)** A microinstruction capable of specifying a limited number of simultaneous operations needed to carry out a machine language instruction. Note: Diagonal microinstructions fall, in size and functionality, between horizontal microinstructions and vertical microinstructions. The designation "diagonal" refers to this compromise rather than to any physical characteristic of the microinstruction. Contrast: horizontal microinstruction; vertical microinstruction. (C) 610.12-1990

**(2)** A microinstruction capable of specifying a limited number of simultaneous operations needed to carry out a machine language instruction. Contrast: horizontal microinstruction; vertical microinstruction. (C) 610.10-1994

**dial (1)** A plate or disc, suitably marked, that served to indicate angular position, as for example the position of a handwheel. (IA) [60]

**(2) (automatic control)** A type of calling device used in automatic switching that, when wound up and released, gener-

ates pulses required for establishing connections.

(EMB) [47]

**dialect (A)** In computer languages, a variation of a particular language. Synonyms: variant; variation; version. (B) A form of a particular language, peculiar to a specific population or group, differing from some standard language in some significant manner. See also: extension; subset. (C) 610.13-1993

**dialing (telephone switching systems)** The act of using a calling device. (COM) 312-1977w

**dialing pattern (telephone switching systems)** The implementation of a numbering plan with reference to an individual automatic exchange. (COM) 312-1977w

**dial-mobile telephone system (mobile communication)** A mobile communication system that can be interconnected with a telephone network by dialing, or a mobile communication system connected on a dial basis with a telephone network. See also: mobile communication system. (VT) [37]

**dialog (dialogue)** Computer-human interaction in which the responses provided by the computer are highly responsive to the questions, answers, and directives given by the user. Synonym: on-line dialog. (C) 610.2-1987

**dialogue window** A window, such as a DialogBox, that pops up to perform a specific function and is then dismissed. (C) 1295-1993

**dial pulse (1) (dial-pulse address signaling systems) (telephony)** A momentary interruption or change in the direct-current path of a signalling system to provide address information. (COM) 753-1983w

**(2)** A means of pulsing that consists of regular, momentary interruptions of a direct or alternating current path in which the number of interruptions corresponds to the value of the digit or carrier. (C) 610.7-1995

**dial-pulse signaling** An address signaling method using the opening and closing of contacts to represent the dialed phone number. The digits are represented as a string of pulses closely spaced (a few milliseconds), and consecutive digits are separated by a longer period without pulsing. (COM) 973-1990w

**dial pulsing (dial-pulse address signaling systems) (telephony)** A means of transmitting the address telephone number over a direct-current path. The current is interrupted, at the transmitting end, in a regular, momentary pattern. The number of interruptions corresponds to the digit being transmitted. (COM) 753-1983w

**dial pushing (telephone switching systems)** A means of pulsing consisting of regular, momentary interruptions of a direct or alternating current path at the sending end in which the number of interruptions corresponds to the value of the digit or character. (COM) 312-1977w

**dial tone (telephone switching systems)** The tone that indicates that the switching equipment is ready to receive signals from a calling device. (COM) 312-1977w

**dial-tone delay** The time it takes for a telephone switching system to return a dial tone to an originating line after the customer goes off-hook. (COM) 973-1990w

**dial train (register)** All the gear wheels and pinions used to interconnect the dial pointers. See also: watt-hour meter. (EEC/PE) [119]

**dial-up circuit** A telecommunication circuit that is established and broken, under human or machine control, using the public switched network, as the routing and transmission medium. See also: foreign exchange circuit; four-wire circuit; leased circuit; simplex circuit; two-wire circuit. (C) 610.7-1995

**dial-up line** A line established on a circuit-switched network for public use. Contrast: leased line. (C) 610.7-1995

**diameter (computer graphics)** In image processing, the maximum distance between any two points in a subset of an image.